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PROCESSING OF PRIMARY PRODUCTS IN DEVELOPING COUNTRIES: PROBLEMS AND PROSPECTS

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EXPLANATORY NOTES

In all statistics relating to the trade of developed market-economy countries imports are measured c.i.f. (except for Canada and the United States, for which they are f.o.b.) and exports are measured f.o.b. "Developed market-economy countries" comprise the following: Australia, Austria, Canada, the countries members of the European Economic Community, Finland, Japan, Norway, Sweden, Switzerland, New Zealand, United States. "Developing countries" include Israel and Yugoslavia. The classification of countries used in this document is intended for statistical convenience and does not imply any judgement regarding the stage of development of any particular country.

In the trade statistics of the developed market-economy countries some flows are not specified by country of origin or destination, and are not included in the statistics shown. To that extent, the data in tables 1-8 understate the trade of the developed market-economy countries with developing countries and with each other.

"Dollars" refer to United States dollars.

The term "billion" signifies 1,000 million.

"Tons" are metric tons throughout.

Chapter I

INTRODUCTION

1. During the past two decades developing countries have made important advances towards industrialization. New processing industries have been established to serve national or regional markets and/or to increase export earnings. The developing countries as a whole, however, remain net exporters of unprocessed commodities and net importers of manufactures, in particular of investment goods and a wide range of manufactured industrial inputs. The spectacular growth in export volumes and values of a number of unprocessed commodities, such as crude petroleum, iron ore and tropical hardwood logs (to mention only three examples) has overshadowed the concomitant fast increase in exports of manufactures and semi-manufactures.

2. In the light of the Lima Declaration and Plan of Action on Industrial Development and Co-operation the past achievements of industrialization, impressive as they may appear, are totally insufficient. In order to reach the Lima target - that developing countries should account for 25 per cent of world manufacturing output by the year 2000, compared with some 8-9 per cent at present - the process of industrialization must be given an unprecedentedly strong impetus. This implies that locally available raw materials must be imparted an ever-increasing degree of processing through various stages of manufacturing. Such increased processing will be reflected also in the commodity composition of the developing countries' trade, both among themselves and with the developed countries, reducing in the latter case the present heavy dependence on exports of unprocessed products and imports of manufactures and semi-manufactures.

3. The realization of the Lima target will require vast, sustained and concerted international action. The transfer of capital and technology from developed to developing countries must be given new dimensions. The requisite restructuring of world output and trade must be facilitated by appropriate policies. Although the greater part of the rising demand for industrial goods in developing countries must be met from domestic output and from trade among themselves, their import requirements of commodities, largely supplied by developed countries, notably capital equipment and certain basic foodstuffs, will also increase. Hence the need to increase the developing countries' export earnings from manufactures of a higher degree of processing, in addition to their earnings from traditional exports.

4. The developing countries differ with respect to both their actual level of development and their future growth prospects. Some are large and endowed with a diversified resource base, and others have a single resource (for example, petroleum) which can provide the financial basis for industrialization. Many, however, have small domestic markets and narrow resource bases, and for such countries, industrial growth depends crucially on international trade and specialization. Several developing countries have in recent years scored notable successes as exporters of manufactures, in particular to developed countries, partly on the basis of imported inputs.

5. The continuous industrialization of developing countries will necessarily result in a rapid rise in their imports of industrial materials and other inputs. A very large proportion of the developing countries' import requirements of manufactured inputs are presently supplied by the developed countries. In the future, a large part of such import requirements will have to be met by trade among

the developing countries themselves. Because of differences in capital, technology, and natural resource endowment, as well as in transport costs, there will obviously always exist a two-way trade in such inputs with the developed countries.

6. The industries producing industrial inputs (for example: rolled steel and other metals; petrochemicals, including synthetic fibres; rubber; and wood pulp) belong to the most capital-, skill- and technology-intensive of all industries. They therefore produce relatively little value added per unit of capital invested and create little employment. These basic industries are, however, essential for balanced industrial growth and thus are already well established in many developing countries. Current and planned investment point to major capacity increases, and the more distant future will no doubt witness a continued growth of output. Precisely because such basic industries are large-scale and highly capital-intensive, they will tend to be localized in the larger among the developing countries and in those where access to capital is less of a constraint.

7. On the other hand, it would appear unlikely that developing countries (taken as a whole) would want to create very large export surpluses in such capital-intensive industries. In order to make best use of scarce capital, to expand employment opportunities substantially and to arrive at optimal diversification of industrial production, activities other than the complete processing of such locally available raw materials as bauxite, iron ore, and crude petroleum may be preferable.

8. What has been said above about basic industries does not, in general, apply to the processing of other locally available raw materials, notably those in agriculture or forestry. As will be shown below, "downstream" processing of certain basic foodstuffs, fibres, hides, tropical wood, etc. not only is a logical (and necessary) step in the industrialization of developing countries, but also offers prospects of greatly enlarged export earnings.

9. The greatest value added is, however, often found not in the earlier stages of processing but in later stages, and an industrial development strategy should aim, other things being equal, at a progressively higher degree of processing. As existing obstacles to further processing in developing countries in the earlier stages may consist largely of access to capital and technology, and in later stages of processing may rather be concentrated in the access to markets and the specialized marketing skills required to export differentiated manufactured products, the policies envisaged to foster processing in developing countries and to increase their exports of more processed commodities must take full account of these marketing aspects.

10. The present study examines the degree of processing in developing countries in relation to their trade with developed market-economy countries in selected product groups, the changes that have occurred in the past 10-20 years in this respect, the scope for further processing, and the conditions which must be met in order to expand exports of manufactures from developing countries to a level consistent with the Lima target.

Chapter II

PRESENT DEGREE OF PROCESSING OF COMMODITY EXPORTS IN DEVELOPING COUNTRIES

11. In 1973 commodities classified under SITC sections 0-4 and conventionally called "primary products" accounted for about three-fourths of total exports from developing countries, but for less than 30 per cent of their total imports and for less than 20 per cent of their imports from developed market-economy countries. SITC sections 0-4 consist, however, not only of crude materials but also of processed materials, as well as of certain finished manufactures. A rough classification of these commodities according to the degree of processing reveals that unprocessed commodities in 1973 accounted for the larger proportion (83 per cent) of the exports of developing countries to developed market-economy countries, semi-processed for 16 per cent, and fully processed for merely 1 per cent. For imports from such countries, the unprocessed category accounted for 52 per cent, semi-processed for 35 per cent and fully processed for 13 per cent. 1/

12. Had it been possible to classify the trade in manufactures of developing countries with the developed market-economy countries (SITC 5-8) by degree of processing - i.e., according to the raw material content of the ex-factory value - there is little doubt that the results would show that developing countries export manufactures with a high raw material content and import manufactures with a low raw material content. The present trade pattern - both for "primary products" (SITC 0-4) and manufactures (SITC 5-8) - thus reflects the relatively feeble degree of industrialization in the developing countries (taken as a whole) in comparison with the situation in developed countries.

13. In the following paragraphs trade between developing countries and developed market-economy countries in selected product groups is analysed by degree of processing (see table 1, where the product groups cover the whole range of SITC, i.e. sections 0-9).

A. Food processing

14. In 1973 the developed market-economy countries' imports from the developing countries in this broad product group consisted, to 74 per cent, of unprocessed commodities. The major items, listed in descending order of imports, were: green coffee; fresh, or simply preserved, fruit; fresh, etc., meat; fresh, etc., fish; oilseeds; and raw sugar. However, in trade among developed market-economy countries in this product group, unprocessed commodities also accounted for the major proportion, or about 62 per cent, and in their exports to developing countries the share was 56 per cent.

1/ In trade among developed market-economy countries in SITC sections 0-4 unprocessed commodities accounted in 1973 for 57 per cent, semi-processed for 37 per cent and fully processed for 6 per cent.

Table 1

Trade in 1973 of developed market-economy countries with developing countries in selected product groups by degree of processing

($ billion)

Product group	Unprocessed		Semi-processed a/		Processed		Total	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
Food, beverages, tobacco, etc.	13.2	5.3	4.0	2.6	0.5	1.6	17.8	9.5
Hides, leather and products	0.3	0.1	0.5	0.2	0.7	0.1	1.5	0.4
Rubber and products	1.1	-	-	0.2	0.1	0.5	1.2	0.7
Wood and products	2.3	0.1	1.5	0.2	0.2	0.2	4.0	0.5
Pulp, paper, etc.	-	-	0.1	1.3	0.1	0.5	0.2	1.8
Textiles and clothing	1.8	0.7	1.6	3.1	3.7	1.1	7.1	4.8
Ores and metals	3.4	-	3.3	1.2	0.6	6.7	7.3	8.0
Sub-total	22.1	6.2	11.0	8.7	5.9	10.7	39.1	25.7
Crude vegetable and animal material n.e.s.	0.5	0.1	-	-	-	-	0.5	0.1
Non-metallic mineral products	0.2	0.2	0.1	0.6	-	0.2	0.4	1.0
Fertilizers	0.4	.	0.1	0.7	-	-	0.4	0.7
Petroleum, crude and refined	27.4	-	4.4	0.6	-	-	31.8	0.6
Plastics	-	-	-	1.4	0.1	0.2	0.2	1.5
Sub-total	28.5	0.4	4.6	3.2	0.2	0.4	33.3	3.9
Total	50.6	6.5	15.6	11.9	6.1	11.1	72.4	29.6

Sources: Special tabulations by the Statistical Office of the United Nations.

a/ Including synthetic rubber and artificial and synthetic fibres.

15. Semi-processed commodities accounted for 23 per cent of developed market-economy countries' imports of food and feed from developing countries. The major items were: oilseed cake and meal; refined sugar; hard vegetable oils; and preserved fruit. In trade among developed market-economy countries, as well as in their exports to developing countries, semi-processed commodities accounted for about 27 per cent of their total trade in the product groups. Thus, the greater part of international trade in this product group consists of unprocessed or semi-processed commodities, while fully processed commodities account for a relatively low proportion. In developed market-economy countries' imports from developing countries, processed food accounted for merely 3 per cent and in their exports to developing countries for 17 per cent, of the total. The latter flow consisted in 1973 largely of milk powder, cereal preparations and cigarettes.

16. Although the import values given in table 2 are c.i.f. (except for the United States and Canada), and hence overstate the export earnings of the developing countries, it nevertheless remains true that the developing countries in 1973 had very large export surpluses in their trade with developed market-economy countries in unprocessed and semi-processed food and feed products, while there was a significant import surplus in trade in fully processed commodities.

B. Hides, leather and leather products

17. In the leather industry the developed market-economy countries' imports from developing countries were already in 1973 highly concentrated on semi-finished and finished articles. Thus, unprocessed hides and furskins accounted for only 23 per cent of the total, compared with 34 per cent for semi-processed and 43 per cent for finished articles. 2/ Exports from developed market-economy countries to the developing countries consisted of unprocessed items (cattle hides) to the extent of 30 per cent; semi-processed (bovine leather) to the extent of 39 per cent and processed (footwear, prepared parts of footwear, and travel goods) to the extent of 31 per cent (see table 3).

18. In trade among the developed market-economy countries, the semi-processed category accounted for a significantly smaller proportion than in trade between such countries and developing countries. The share of fully-processed goods in trade among developed market-economy countries is very similar to that in imports of these countries from developing countries.

C. Rubber and rubber products

19. Natural rubber is produced only in developing countries. In 1972 output amounted to about 3.1 million tons, which accounted for about one-third of world output of rubber, including synthetic rubber. Most natural rubber is used in combination with the synthetic product. This explains why developing countries

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2/ Within each of the three categories there exist differences in the degree of processing; raw hides may be fresh, salted, dried, pickled or limed; leather may be ready to finish or fully dressed; leather products may be more or less elaborate.

Table 2

Trade in 1973 among developed market-economy countries and with developing countries in food and feed (SITC 0, 1, 221 and 4) by degree of processing

($ million and percentages)

Degree of processing[a]	Trade with developing countries				Trade among developed market-economy countries			
	Imports		Exports		Imports		Exports	
	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
Unprocessed	13 206	74.4	5 301	55.9	23 140	61.0	22 359	63.2
of which: feed[b]	161	0.9	111	1.2	829	2.2	807	2.3
Semi-processed	4 022	22.6	2 568	27.1	10 662	28.1	8 768	24.8
of which: feed	1 042	5.9	135	1.4	1 511	4.0	1 464	4.1
Processed	535	3.0	1 610	17.0	4 106	10.8	4 232	12.0
Total	17 763	100.0	9 479	100.0	37 908	100.0	35 359	100.0

Source: As for table 1.

a/ For the definition of the three stages of processing see annex.
b/ Excluding cereals, of which a large proportion is used as fodder.

Table 3

Trade in 1973 among developed market-economy countries and with developing countries in hides, leather and leather products (SITC 21, ex29, 61, 83, ex84 and ex85) by degree of processing

($ million and percentages)

Degree of processing[a]	Trade with developing countries				Trade among developed market-economy countries			
	Imports		Exports		Imports		Exports	
	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
Unprocessed (hides and furskins, undressed)	349	22.7	122	30.2	1 431	30.8	1 495	31.8
Semi-processed (leather and dressed furskins)	520	33.9	157	38.9	1 038	22.3	1 074	22.9
Processed	667	43.4	125	30.9	2 178	46.9	2 128	45.3
Total	1 536	100.0	404	100.0	4 647	100.0	4 697	100.0

Source: As for table 1.

a/ For the definition of the three stages of processing see annex.

export natural rubber in unprocessed or, only slightly processed, form. There are, however, certain exports of rubber gloves and footwear to the developed countries.

20. As table 4 shows, the developing countries are net importers in their trade with developed market-economy countries of unprocessed synthetic rubber, materials of rubber (pastes, plates, sheets, rods, threads, tubes) and articles of rubber 3/ (tyres, hygienic articles, conveyor belts, etc.), but net exporters of unprocessed natural rubber.

21. This situation reflects basically the limited development of synthetic rubber production in developing countries. In 1974 only five of them - Argentina, Brazil, Mexico, India and the Republic of Korea - produced synthetic rubber, accounting together for some 285,000 tons or about 4 per cent of world output. Exports of synthetic rubber from developed market-economy countries to developing countries amounted in 1972 to about 270,000 tons.

D. Wood and wood products

22. In the sector wood and wood products, trade between developed market-economy countries and developing countries is virtually a one-way flow, imports from the developing countries at $4.0 billion in 1973 being over eight times as large as exports to them. The freight element is, however, relatively important for both roundwood and sawnwood and in comparable f.o.b. terms the imbalance is obviously less marked. The developing countries possess the greater part of the growing stock of tropical hardwood, of which only a small part is in use.

23. Most of the tropical wood exported from developing countries is so far shipped in the form of saw logs or veneer-logs. In 1972 net exports from developing countries of broadleaved roundwood amounted to 35 million m^3 (at an average export unit value of $23 per m^3), while the roundwood equivalent of the net exports of sawnwood, veneer sheets and plywood amounted to about 12.5 million m^3 (at an average export unit value of about $45-$50 per m^3 roundwood equivalent).

24. Exports of more processed wood products (including furniture) from developing countries to the developed market-economy countries are still relatively unimportant, accounting for only 5 per cent of the total value in 1973 of their exports to those countries of wood and wood products, judging from the import statistics of the developed market-economy countries (see table 5). In the exports of wood and wood products from developed market-economy countries to developing countries the more processed wood products accounted for as much as 47 per cent; but the total was very small.

3/ Production of rubber tyres in developing countries accounted in 1972 for almost 7 per cent of the world total, as measured by the number of tyres produced.

Table 4

Trade in 1973 among developed market-economy countries and with developing countries in rubber and rubber products (SITC 23, 62, ex65, ex84, ex85) by degree of processing

($ million and percentages)

Degree of processing[a/]	Trade with developing countries				Trade among developed market-economy countries			
	Imports		Exports		Imports		Exports	
	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
Crude rubber	1 106	89.1	144	19.6	711	19.3	679	19.3
of which: synthetic	4	0.3	137	18.6	671	18.2	634	18.0
Materials of rubber	5	0.4	97	13.2	379	10.3	401	11.4
Articles and other manufactures of rubber	131	10.6	495	67.1	2 604	70.5	2 438	69.3
of which: tyres	38	3.1	333	45.2	1 723	46.6	1 542	43.8
Total	1 242	100.0	736	100.0	3 694	100.0	3 518	100.0

Source: As for table 1.

a/ For the definition of the three stages of processing see annex.

Table 5

Trade in 1973 among developed market-economy countries and with developing countries in wood and wood products (SITC 241, 242, 243, 631, 632, ex 821), by degree of processing

($ million and percentages)

Degree of processing[a/]	Trade with developing countries				Trade among developed market-economy countries			
	Imports		Exports		Imports		Exports	
	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
Unprocessed								
Roundwood	2 259	56.8	53	11.5	1 527	16.0	1 175	13.3
Coniferous	63	..	29	..	1 196	..	859	..
Broadleaved	2 163	..	11	..	138	..	124	..
Semi-processed								
Sawn and planed wood	843	21.2	131	28.3	4 016	42.2	3 710	42.0
Coniferous	131	..	117	..	3 697	..	3 412	..
Broadleaved	700	..	12	..	299	..	284	..
Veneers, plywood, etc.	680	17.1	62	13.4	1 501	15.8	1 305	14.8
Processed								
Wood manufactures, incl. furniture	195	4.9	217	46.9	2 477	26.0	2 637	29.9
Total	3 977	100.0	463	100.0	9 521	100.0	8 827	100.0

Source: As for table 1.

a/ For the definition of the three stages of processing, see annex.

25. The product composition of intra-developed market-economy countries trade in wood and wood products is heavily concentrated in sawnwood (largely coniferous) and wood manufactures (including furniture). Veneers and plywood take, however, about the same proportion in intra-developed market-economy country trade as in imports by such countries from developing countries.

E. Pulp, paper and paper products

26. Processing of wood is carried further in the pulp and paper industry. Pulp is, however, also produced from fibres other than wood (bamboo, bagasse, etc.), particularly in developing countries, and paper and paperboard is also based on wastepaper. There is relatively little international trade in pulpwood, apart from particular heavy Japanese imports of wood chips for pulping, and some border trade between Norway and Sweden and between Finland and the Soviet Union.

27. Trade between developed market-economy countries and developing countries in pulp, paper and paper products displays an extreme imbalance, exports from the former being 10 times as large as their imports from developing countries (see table 6). This reflects the low production of pulp and paper in developing countries, accounting in 1972 for merely 4.3 per cent and 4.8 per cent respectively of world output. Nevertheless, there was a substnatial increase in production of woodpulp in many developing countries during the post-war period, particularly in Brazil, Yugoslavia, Chile, Mexico, Argentina and Swaziland (countries with coniferous forests) and of other fibre pulp, particularly in India.

F. Fibres, textiles and clothing

28. Developing countries are major producers of natural fibres. They are less prominent as producers of artificial and synthetic fibres, in 1972 accounting respectively for 13 per cent and 6 per cent of world output. The trade in textile fibres between developed market-economy countries and developing countries in 1973 reflected this production pattern (see table 7). Of total exports of textile fibres and products from developed market-economy countries to developing countries, synthetic and artificial fibres, yarns and fabrics accounted for 46 per cent, while in the reverse flow these products accounted for merely 3 per cent. A great proportion of the artificial and synthetic textile materials imported into developing countries is exported back to the developed countries in the form of made-up textiles and clothing which, not counting knotted carpets, accounted for 46 per cent of the developing countries' exports to developed market-economy countries of all textile fibres and products.

29. Hence, the present "division of labour" between developing and developed countries in the sector of textile fibres and products involves net exports of natural fibres (largely cotton, but also some wool, jute and hard fibres), of grey cotton yarn; of grey cotton cloth; jute fabrics and silk fabrics; and of clothing, knotted carpets and cordage. At the same time, developing countries have import surpluses in synthetic fibres, yarns and fabrics; and also in wool yarn and fabrics; cotton fabrics other than grey; and in special textile fabrics and related products (SITC 655) other than cordage.

30. Altogether, the developing countries had in 1973 an export surplus in their trade with developed market-economy countries in the sector of fibres, textiles and clothing (see table 7).

Table 6

Trade in 1973 among developed market-economy countries and with developing countries in pulp, paper and paper products (SITC 25, 64 and 892), by degree of processing

($ million and percentages)

Degree of processing[a/]	Trade with developing countries				Trade among developed market-economy countries			
	Imports		Exports		Imports		Exports	
	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
Semi-processed								
Pulp	52	28.4	305	16.6	2 873	24.7	2 689	24.7
Paper	41	22.4	1 002	54.4	5 657	48.6	5 352	49.1
Newsprint	1	..	161	..	1 818	..	1 612	..
Processed								
Paper articles	28	15.3	263	14.3	1 002	8.6	946	8.7
Printed matter	62	33.9	273	14.8	2 103	18.1	1 907	17.5
Total	183	100.0	1 843	100.0	11 635	100.0	10 894	100.0
For reference: Pulpwood	14		1		96		109	

Source: As for table 1.

a/ For the definition of the two stages of processing, see annex.

Table 7

Trade in 1973 among developed market-economy countries and with developing countries in fibres, textiles and clothing (SITC 26, 65, ex 84), by degree of processing

($ million and percentages)

Degree of processing[a/]	Trade with developing countries				Trade among developed market-economy countries			
	Imports		Exports		Imports		Exports	
	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
Unprocessed (fibres)	1 775	25.1	1 030	21.4	4 415	20.5	4 317	20.2
of which: artificial and synthetic	11	0.2	366	7.6	1 152	5.3	1 079	5.0
Semi-processed	1 601	22.7	2 718	56.3	8 707	40.4	8 586	40.1
of which: yarns	362	5.1	1 033	21.4	3 361	15.6	3 299	15.4
of which: artificial and synthetic	73	1.0	867	18.0	2 575	12.0	2 492	11.7
Fabrics	1 239	17.6	1 685	34.9	5 346	24.8	5 287	24.7
of which: artificial and synthetic	136	1.9	1 007	20.9	2 234	10.4	2 268	10.6
grey cotton cloth	465	6.6	9	0.2	245	1.1	232	1.1
jute fabrics	284	4.0	3	0.1	34	0.2	32	0.2
Processed	3 685	52.2	1 077	22.3	8 433	39.1	8 494	39.7
of which: knotted carpets	431	6.1	6	0.1	32	0.2	61	0.3
clothing	2 905	41.1	543	11.3	5 366	24.9	5 338	25.0
Total	7 061	100.0	4 825	100.0	21 555	100.0	21 397	100.0

Source: As for table 1.

a/ For the definition of the three stages of processing, see annex.

G. Ores and metals

31. In the present context only four broad stages of processing are considered: ores (and concentrates): unwrought metals; rolled and shaped (worked) metals; and metal manufactures. While the SITC permits a distinction between ferrous and the different non-ferrous metals in the first three stages, this distinction is not fully possible in the fourth stage. Table 8 consequently covers all basic metals, although distinguishing among them as far as possible.

32. The import data for developed market-economy countries, are c.i.f., except for the United States and Canada, and overstate for this reason the developing countries' export earnings, particularly in the case of ores and concentrates, where the freight component may account for about one-third of the landed cost. The differences between the import and export structures of the developed market-economy countries in their trade with developing countries are, however, so substantial with respect both to type of metal and degree of processing that the influence of freight costs may be disregarded.

33. Table 8 shows the present "division of labour" between developing and developed countries in the sector "ores, metals and metal manufactures". The developing countries are net exporters of iron ore, non-ferrous ores and concentrates, unwrought non-ferrous metals (particularly copper and tin) and ferro-alloys (largely ferro-nickel). They are net importers of crude and rolled steel, worked non-ferrous metals and metal manufactures. Even if a crude adjustment is made to the export figures in table 8 for developing countries in order to express them in f.o.b. terms, the share of processed products (worked metals and manufactures) in total exports of developing countries to developed market-economy countries would still remain below 10 per cent, in contrast to the corresponding share in exports from developed market-economy countries to developing countries of 84 per cent.

H. Other product groups

34. Table 1 above contains data also for certain other product groups for which a classification according to the degree of processing appeared meaningful. This trade is dominated by developed market-economy country imports of crude and refined petroleum from developing countries. Developed market-economy country exports in these product groups consisted, in 1973, largely of semi-processed commodities (manufactured building materials, flat glass, manufactured fertilizers, refined petroleum and plastic materials).

35. Commodities not included in table 1 consist largely of manufactures belonging to SITC sections 5, 7 and 8. The trade of the developed market-economy countries with developing countries in these manufactures in 1973 was as follows ($ billion):

	Imports	Exports
Machinery and transport equipment	2.7	27.1
Chemicals a/	0.6	5.5
Miscellaneous manufactures b/	1.2	2.9
Total of above	4.5	35.5

a/ Excluding manufactured fertilizers and plastic materials.

b/ Excluding wood furniture, clothing and footwear.

Table 8

Trade in 1973 among developed market-economy countries and with developing countries in ores, metals and metal manufactures (SITC 281, 283, 67, 682-689)

($ million and percentages)

Degree of processing a/	Trade with developing countries				Trade among developed market-economy countries			
	Imports		Exports		Imports		Exports	
	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
Unprocessed								
Iron ore and concentrates	1 794	24.5	3	-	2 083	6.2	1 262	3.9
Non-ferrous ores and concentrates	1 648	22.5	37	0.5	2 147	6.4	1 794	5.6
Sub-total	3 442	47.0	40	0.5	4 230	12.5	3 056	9.5
Semi-processed								
Pig iron	42	0.6	23	0.3	266	0.8	254	0.8
Ferro-alloys	279	3.8	24	0.3	463	1.4	531	1.7
Crude steel	52	0.7	606	8.6	1 484	4.4	1 948	6.1
Blister copper	293	4.0	-	-	39	0.1	118	0.4
Refined copper	1 305	17.8	93	1.2	1 520	4.5	1 086	3.4
Alumina	286	3.9	53	0.7	303	0.9	324	11.0
Aluminium	176	2.4	131	1.6	1 094	3.2	1 118	3.5
Other unwrought non-ferrous metals	867	11.8	207	2.6	2 072	6.1	2 032	6.3
Sub-total	3 300	45.1	1 217	15.3	7 241	21.4	7 411	23.1
Processed								
Rolled steel	276	3.8	4 264	53.5	12 470	36.9	11 921	37.2
Worked copper	32	0.4	237	3.0	1 386	4.1	1 356	4.2
Worked aluminium	26	0.4	214	2.7	1 113	3.3	117	3.5
Other worked non-ferrous metals	6	0.1	49	0.6	262	0.8	285	0.9
Sub-total	340	4.6	4 764	59.8	15 231	45.1	14 679	58.8
Metal manufactures	244	3.3	1 946	24.4	7 064	20.9	6 884	21.5
Total	7 326	100.0	7 967	100.0	33 766	100.0	32 030	100.0

Source: As for table 1.

a/ For the definition of the three stages of processing see annex.

Chapter III

OBSTACLES TO FURTHER PROCESSING OF PRIMARY PRODUCTS IN DEVELOPING COUNTRIES

36. The relatively weak development of processing and manufacturing industries in most developing countries is reflected in the generally low degree of processing of their commodity exports to developed market-economy countries. To the extent that crude materials are processed in developing countries before being exported, the purpose is often and primarily to render the material transportable. Thus ores are concentrated or smelted in order to reduce their bulk and reduce transport costs, and perishable foodstuffs must be dehydrated or tinned before they can be transported over long distances.

37. This kind of processing is most often a legacy of the colonial era. Although rarely intended to have such an effect - colonial administrations and expatriate firms had little incentive to develop other forms of processing in territories with weak domestic demand for processed goods - such processing activities have, particularly after independence, facilitated industrial development in some countries.

38. Tariff and non-tariff measures applied by developed countries and restrictive business practices of enterprises of these countries constitute major obstacles to the expansion of imports from developing countries of commodities in processed forms. The following sections review briefly the main aspects of the problem and contain some policy considerations. 4/

A. Tariff barriers

39. Despite successive MFN tariff reductions on a bilateral and multilateral basis the levels of tariff protection in developed market-economy countries remain rather high. Generally, protection is very high on imports of agricultural products of the Nomenclature of the Customs Co-operation Council (CCCN) 5/ (chapters 1-24), especially on those products which are similar to, or enter into competition with, domestically produced goods. Temperate zone agricultural products face the highest tariffs in developed market-economy countries. Tropical products, even though not produced in these countries, also face a high level of protection.

40. While the industrial raw materials imported from developing countries are generally admitted free of duty or at low rates, semi-manufactures and manufactures attract high rates of duty. The tariffs tend to escalate with the degree of

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4/ For a detailed discussion of the subject see "An integrated programme for commodities: report by the Secretary-General of UNCTAD" (TD/B/C.1/166) and ibid., "Trade measures to expand processing of primary commodities in developing countries" (TD/B/C.1/166/Supp.5), and also "Measures to expand processing of primary commodities in developing countries: report by the UNCTAD secretariat". (TD/B/C.1/197).

5/ Formerly Brussels Nomenclature (BTN).

processing, and the resulting high level of effective protection tends to impede exports of processed goods and favour exports of raw materials, thus inhibiting the further processing of these materials for export.

41. In previous tariff negotiations, in or outside of GATT, the developed market-economy countries exchanged tariff concessions principally on products traded among themselves. As a result, their tariffs on these products are generally much lower than on products exported by developing countries. This is another characteristic feature of tariff structures in developed countries. It has been estimated that in the mid-1960s the main manufactured exports of developing countries are faced with nominal tariffs in developed market economies, about 50 per cent higher, on average, than those levied on imports from developed countries. 6/

42. With the implementation by the developed countries of their schemes of generalized preferences under the GSP, the tariffs on products covered by the system have been generally eliminated or substantially reduced. For those product groups where the GSP has eliminated tariff escalation, the effective tariff protection has also been eliminated. However, many products of export interest to developing countries are not covered by the GSP, in particular agricultural products in primary or processed form, and labour-intensive or resource-based industrial products such as textiles, articles of leather, footwear, etc. Moreover, the schemes of some preference-giving countries provide for only partial tariff reduction, rather than duty-free entry, while some countries limit the volume of preferential imports for certain products.

43. Further substantial improvements of the GSP are, therefore, called for, including its extension to all products of export interest to developing countries, unlimited duty-free entry for all products covered, and making the system more secure. 7/

B. Non-tariff barriers

44. Semi-processed and processed commodities exported by developing countries are very often subject to a variety of non-tariff barriers, (applicable also in trade among developed market-economy countries) which can be classified into five main groups: (i) specific limitations on trade (quantitative restrictions, licensing, "voluntary" export restraints, embargoes, minimum price regulations, health and sanitary regulations, etc.); (ii) charges on imports (variable levies, border taxes, special duties on imports, prior deposits, etc.); (iii) technical barriers (industrial standards and technical norms and regulations, including packaging, labelling and marking regulations); (iv) governmental intervention in trade (government procurement, export subsidies, countervailing duties, trade-diverting aid, etc.); and (v) customs and administrative entry procedures (customs valuation, classification, consular and customs formalities and requirements, and sample requirements).

6/ "The structure of protection in the industrial countries and its effects on the exports of processed goods from developing nations". (TD/B/C.2/36, study prepared by Prof. Bela Belassa). See table 2 of the study.

7/ See also in this connexion TD/185, paras. 22-24.

45. An examination of a number of processed and semi-processed goods, including manufactures and semi-manufactures in the CCCN headings and sub-headings of particular export interest to developing countries, indicates that a sizeable proportion of these products and product groups (37 in CCCN chapters 1-24, and 12 in CCCN chapters 25-99) is subject to various forms of non-tariff barriers in many developed market economies. 8/ It appears that the frequency of such barriers increases with the stage of processing. Thus, various forms of non-tariff barriers tend to be serious obstacles to the processing by developing countries of their commodities for export.

C. Restrictive business practices

46. Restrictive business practices of enterprises of developed countries are another serious barrier to exports of processed products by the developing countries. The Ad hoc Group of Experts convened by the Secretary-General of UNCTAD in March 1973 "agreed that the continuance of private barriers could defeat, to a greater or lesser extent, trade liberalization measures in the tariff and non-tariff field". 9/ The following are among the restrictions which are likely to have adverse effects on the expansion and further processing of primary commodities in developing countries and of their exports:

(a) Cartel practices: (the activities of import cartels, rebate cartels and other price-fixing arrangements, national and international export cartels);

(b) Commercial restrictions on the scope of production, exports, etc. of firms in the developing countries as a result of contractual arrangements between firms in developed and developing countries;

(c) Restrictions stemming from the activities and practices of transnational corporations in developing countries, in particular those relating to their territorial market and product allocation arrangements and their use of the transfer pricing mechanism for intra-corporate transactions;

(d) Inherent restriction on exports by firms in developing countries as a result of the patent and trademark system.

D. Other obstacles

47. A number of other factors have worked against "downstream" processing in developing countries. European economic integration has had its greatest impact on trade in manufactures by discriminating against outsiders. The GSP has so far not fully offset this impact, partly because it is of relatively recent origin and partly because it does not cover all products. The Lomé Convention however,

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8/ See TD/B/C.1/166/Supp.5, table 2.

9/ Restrictive business practices in relation to the trade and development of developing countries. Report by the Ad hoc Group of Experts (TD/B/C.2/119/Rev.1), United Nations publication, Sales No. E.74.II.D.11, para. 8.

provides duty-free entry for all manufactures exported from 46 African, Caribbean and Pacific countries to the European Economic Community. Agricultural policies in developed countries have also tended to limit exports from developing countries of competing foodstuffs, whether unprocessed or processed.

48. The reduction of shipping costs which occurred during the post-war period has had its greatest impact on bulk shipment of ores and other crude minerals, crude petroleum, logs, etc., thereby tending to strengthen the role of developing countries as suppliers of crude materials and thus indirectly to hamper exports of processed products.

Chapter IV

CONDITIONS FOR FURTHER PROCESSING OF PRIMARY PRODUCTS IN DEVELOPING COUNTRIES

49. In addition to appropriate action by developed countries, in particular in the field of access to markets, measures in the area of production need to be taken in order to create favourable conditions for further processing in developing countries of locally available raw materials.

50. Processing at source can be looked at as a way to increase export earnings but, more significantly, it is part of the industrialization process itself. Given limited investment resources and absorptive capacity in most developing countries, there is likely always to exist a choice between on the one hand promoting the processing of primary products for which developing countries are major net exporters and on the other creating capacities for the production of industrial inputs (at present largely imported from the developed countries) which will be increasingly demanded by the growing manufacturing industry in the developing countries themselves.

51. The realization of the Lima target depends to a large measure on an acceleration of the growth in developing countries of output, exports and, in particular, imports from the historical growth rates. In the growth process the sectoral composition of both output and trade will change, as will also the geographical trade patterns. Rising living standards in developing countries will increase demand for foodstuffs and for manufactured articles of mass consumption manufactures, and also for more sophisticated manufactures, including capital equipment. A very large proportion of the rising demand must be met from domestic output in and from trade among, the developing countries themselves; but their import requirements for products largely supplied by developed countries will also increase - notably the more sophisticated types of capital equipment and certain basic foodstuffs.

52. For the majority of developing countries, a sustained expansion in the purchasing power of their exports will depend on measures to strengthen their position in world commodity markets. International action to stabilize commodity prices and to achieve adequate returns, in real terms, for the commodity exports of developing countries could be supplemented by measures designed to increase the degree of domestic processing of their primary products, and thus to enhance the value of their exports.

A. The capital costs of processing

53. The value added gain from a higher stage of processing of primary products must, however, be weighed carefully against the cost of capital required, the need for complementary inputs and the relative employment effects of each individual project. The earlier stages of processing normally yield standardized products, largely semi-finished industrial outputs and certain foodstuffs ready for consumption. Such production is consequently large-scale, capital-intensive and normally technology-intensive. It can be demonstrated from the industry profiles in the 1970 Survey of Manufactures of the United States that the capital required per person employed, and also per establishment, is highest in the primary processing and

lowest in the final stages of processing (manufacturing). 10/ Of the 80 branches with a capital invested per person employed in 1970 of over $20,000, only 20 had a ratio of value added to capital of above 1.0, namely industries producing branded foods, pharmaceuticals, detergents and photographic equipment, but also primary copper and metal cans.

54. There were 322 branches with a capital invested per person employed of less than $20,000. Of these, 42 had a ratio of value added to capital stock of less than 1.0, of which 11 were in the textile industry and 5 were wood products industries. The others with a ratio of less than 1.0 comprised several branches of the non-metallic minerals industry, a number of branches of metal manufactures, as well as roller bearings, cathode ray picture tubes, semi-conductors and mechanical measuring devices. It would appear that these are low-skill industries (that is, they pay relatively low wages) or industries with very low returns on the capital invested.

55. There were 105 branches with a capital invested per person employed of less than $20,000 in 1970 and a ratio of value added to capital stock of over 2.0. Of these, 29 were in the clothing industry, 7 in the furniture industry, 9 in the printing and publishing industry, 8 in the leather products industry, 33 in the engineering industry (largely branches producing household apparatus and equipment for service industries) and 11 in miscellaneous industry (toys, musical instruments, etc.). It is notable that developing countries' recent export successes have largely been concentrated in these industrial branches.

B. The input requirements

56. It can be shown that the increase in industrial consumption of a number of major semi-finished inputs in developing countries implied by the Lima target is such that developing countries will be obliged to make a very considerable investment effort merely to avoid an increase in their import dependence on such inputs. (See table 9.) For reasons of transport economies, specialization and other economic and non-economic factors, some developing countries will obviously, in the future as now, export such products to the developed countries while others will import from the developed countries. It is, however, the future net trading position of developing countries as a whole that is most relevant for their economic development.

10/ It is true that the United States is the largest national economy in terms of GNP and has, generally, the technically most advanced industrial structure. However, the country can also be looked upon as one vast free-trade area, where big and small enterprises and more or less capital- and skill-intensive techniques cohabit.

Table 9

Required production increase in developing countries of selected manufactured inputs in order to reach the Lima target: production in the year 2000 as a multiple of production in 1972

A = Assuming the 1972 ratio of net trade in the product to industrial consumption of the product

B = Assuming self-sufficiency in the product in the year 2000

Product	A	B
Rayon staple fibre and filament	4.5	6.7
Synthetic staple fibre and filament	5.9	10.5
Sawnwood, coniferous and broadleaved	6.0	5.8
Panel products	8.9	6.6
Wood and other fibre pulp	9.1	10.5
Paper and paper board (excluding newsprint)	7.1	9.8
Synthetic rubber	8.5	20.0
Energy materials (hard coal equivalent)	6.4	1.9
Steel	6.6	12.8
Aluminium metal	8.7	7.7
Copper metal	8.7	2.3
Zinc metal	7.0	7.5
Lead metal	6.8	4.4
Tin metal	7.4	0.9

Source: UNCTAD secretariat estimates (see text, para. 57).

57. The data in table 9 have been derived from a comparison of per capita consumption of selected manufactured inputs as a function of per capita GDP in developing and developed market-economy countries (taken as aggregates) in 1972 and from an assumption of the required per capita GDP in developing countries in the year 2000 consistent with the Lima target. In order to reduce their dependence on imports, developing countries are consequently required to expand output particularly fast in products such as synthetic rubber, steel, synthetic fibres and wood and other fibre pulp. Judging from the industry profiles in the United States, which can be considered generally representative (in developing countries also) of the relative capital- and skill-intensity of individual manufacturing branches, these branches belong to the most capital-intensive and also to the most skill-intensive (see table 10).

58. In comparison with the required heavy investments in basic industries, the capital requirements for increasing the degree of processing are relatively modest for most other products. This is true not only for the processing of textile yarn and fabrics into clothing, hides and leather into footwear and other leather products, but also for the processing of finished steel and other metals into machinery and equipment.

C. The need for co-operation among developing countries

59. Much work has been carried out on how an individual project should be evaluated. Both UNIDO and OECD have published detailed manuals for use by developing (and developed) countries. While this work is important, the question for the planner may not be so clear-cut as a single project or even a set of projects. He might have to decide on which areas his country should concentrate, either through direct participation of the government or through investment incentives and foreign currency allocations. Thus, he must decide how to allocate resources among many different sectors and he will have to consider many different factors.

60. Co-operation among developing countries is an essential step if real gains are to be made in the process of development, including increased foreign exchange earnings. The minimum size of productive facilities, at various stages of processing, and the associated costs of capital and other inputs, make joint action among developing countries essential. Only a few developing countries have a domestic market large enough for plant of an optimum size in such industries as steel, copper, and other primary industrial activities. Even if development were to proceed at the fastest pace possible under ideal conditions, most developing countries would be unable to consume all the output of even a single large-scale operation. Some processes - such as pelletization, direct reduction, electric furances and continuous casting of steel - can be built on a small scale without real sacrifice of efficiency. Others - such as flat mills for making steel plate - cannot realistically be built except with a very large capacity. Other processes may not be economically viable if only the first few stages of processing are aimed at (e.g. for export) but could become viable when third, and even fourth, stage uses are also considered. Thus, going from refining copper to the establishment of continuous copper-casting plants would hardly - given present prices for refined copper - make economic sense, but because of the efficiency of using the ouput of these plants for other purposes, including making wires and pipes for local and regional use, the transition through the middle stage is an economic necessity. The same inefficiencies of transportation that preclude the shipment of continuous casting outputs to Europe and North America obviously also make the import of such products that much more costly.

Table 10

Industry profiles in the United States, 1970

SIC No.	Description	Value added/ capital stock (ratio)	Shipments/ capital stock (ratio)	Capital stock per No. of employed	Capital stock per No. of establish.	Wage per production worker man-hour
				$ 000		$
20	Food and drink prod.	1.2	3.8	15.6	786	3.2
21	Tobacco manufactures	2.5	5.4	13.8	2 984	3.0
22	Textile mill products	0.9	2.2	11.0	1 437	2.5
23	Apparel and other textile products	4.2	8.6	2.1	103	2.2
24	Lumber and wood prod.	1.0	2.1	11.2	166	2.8
25	Furniture and fixtures	2.0	3.7	5.6	244	2.7
26	Paper and allied prod.	0.6	1.3	29.5	3 286	3.6
27	Printing and publishing	1.7	2.5	9.6	273	3.9
28	Chemicals and allied products	0.8	1.4	41.0	3 054	3.9
29	Petroleum and coal prod.	0.3	1.6	108.8	8 440	4.6
30	Rubber and plastic products n.e.s.	1.1	1.9	14.6	1 236	3.2
31	Leather and other prod.	3.2	6.0	3.0	238	2.5
32	Stone, clay and glass prod.	0.7	1.3	22.2	850	3.5
33	Primary metal industries	0.5	1.3	33.5	6 181	4.2
34	Fabricated metal prod.	1.4	2.6	11.3	552	3.6
35	Machinery, except electrical	1.4	2.4	12.2	610	3.9
36	Electrical equipment and supplies	1.7	3.0	8.8	1 504	3.4
37	Transport equipment	1.4	3.5	12.1	2 728	4.3
38	Instruments	1.9	2.9	10.1	917	3.4
39	Miscellaneous manf. ind.	2.0	3.5	6.5	198	2.7

Source: United States Department of Commerce, Annual Survey of Manufactures, 1970: Industry Profiles, Washington DC., 1972.

61. The differentiation of the product at later stages of processing is also a factor that must be considered. The transition from raw hides to finished shoes, for example, has considerable value-added gains associated with it. The capital costs are much the same as those associated with a tannery, but the value-added gains per unit of capital stock are about three times the value added in tanning. To produce shoes, however, developing countries will have to overcome barriers of quality and marketing, as well as tariff barriers and quantitative restrictions. Government policies - in developed and developing countries - can induce the required changes in regulations in order to facilitate the improvement of quality and the reduction or elimination of trade restrictions. Marketing, however, will require the developing countries to improve communications between buyers and producers, standardize product sizes (specific for each market served), and regulate delivery so that buyers can be assured that products will arrive on time.

Chapter V

THE SCOPE FOR FURTHER PROCESSING

62. This chapter examines the scope for further processing after briefly describing changes in the degree of processing that have occurred in developing countries during the post-war period.

A. Past changes in the degree of processing

63. In the case of meat and fish developing countries' exports have increased significantly faster for the fresh and frozen varieties than for the canned. This reflects improvements in transportation and fishing technologies: faster ships, better freezing capacity, etc. Canned meat and fish is considered by consumers an inferior product to the fresh and frozen varieties. The tremendous growth in exports of fish meal (largely from Peru) was based on the utilization of a fish variety that has no value as human food and which was previously not caught, (see table 11). In the sector oilseeds and vegetable oils there has occurred a rapid shift to oils in exports by developing countries, which is also reflected in their export growth in oilseed cake and meal, (see table 11).

64. Table 12 shows that the wood sector in developing countries has experienced extremely fast, export-oriented growth in developing countries during the post-war period. With total removals of broadleaved wood (tropical hardwood) increasing almost six times between 1948 and 1972, the share of sawlogs and veneer logs in total removals increased from 8 per cent to 11 per cent. A very large proportion of the increased production of sawlogs and veneer logs was exported without further processing; such exports increased almost 32 times between 1948 and 1972, with a consequent increase in the export share from 10 per cent to 42 per cent.

65. Production of sawn broadleaved wood increased slower than output of sawlogs and veneer logs partly because a growing proportion of the logs was exported and partly because the logs were increasingly turned into veneer sheets and plywood rather than sawnwood. Even for sawnwood, the export share increased, from about 15 per cent in 1948 to close to 20 per cent in 1972.

66. In the early post-war years the plywood industry barely existed in the developing countries. In some developing countries the vast expansion of plywood production is based on imported logs, for example, in the Republic of Korea and in Israel. If the exports of mechanically processed wood (sawnwood, plywood, veneer sheets, wood mouldings, etc.) are converted into roundwood equivalents, it is found that the degree of processing of developing countries' exports actually declined over the period. In value terms, the share of processed wood increased, however, to reach about 45 per cent of the total in 1972.

67. For textile fibres and products certain changes in the degree of processing in the export pattern of developing countries are apparent from tables 13-15. Exports of cotton and jute fabric from these countries increased about twice as fast as their exports of cotton and jute fibres respectively, indicating a change towards a higher degree of processing in their exports. None the less, in trade with the rest of the world the developing countries earn more foreign exchange from their exports of raw cotton than from their exports of cotton yarn and fabrics. They increased their share in both world production and mill consumption of cotton fibre between 1948 and 1972. (See table 14). There was, however, no increase in mill consumption in relation to raw cotton production.

Table 11

Annual average exports of the developing countries in 1950-1952 and 1970-1972 of selected commodities

($ million)

SITC (1)	Commodity (2)	Export value 1950-52 (3)	Export value 1970-72 (4)	Exports 1970-72 as multiples of 1950-52 (5)=(4) ÷ (3)
011.1	Beef	64	661	10.4
013	Canned meat	90	234	2.6
031.1/2	Fish fresh, frozen, dried	34	161	10.8
031.3	Crustaceans, molluscs	18	342	19.4
032.0	Fish products	44	86	1.9
081.4	Fishmeal	7	317	48.1
221.7	Castor bean	24	13	0.5
422.5	Castor oil	25	52	2.1
221.1	Groundnuts	129	154	1.2
421.4	Groundnut oil	63	121	1.9
221.5	Linseed	36	2	0.1
422.1	Linseed oil	77	32	0.4
221.3	Palm kernels	115	60	0.5
422.4	Palm kernel oil	8	36	4.6
221.2 ex051.7(3)	Dessicated coconuts, copra	329	210	0.6
422.3	Coconut oil	89	150	1.7
422.2	Palm oil	125	200	1.6
081.3	Oilseed cake, meal	98	402	4.1

Source: UNCTAD Secretariat estimates, based on data supplied by the World Bank.

Table 12

Production and exports of broadleaved wood by degree of processing in developing countries, 1948, 1960 and 1972

	1948	1960	1972	1972/1948 (multiple)
Roundwood (million m^3)				
Total removals	160	540	920	5.8
of which: sawlogs, veneer logs	13.4	54.5	98.7	7.4
Exports of sawlogs, veneer logs	1.3	11.8	41.2	31.7
Sawnwood (million m^3)				
Production	5.6	15.4	26.7	4.8
Exports	0.8	2.3	5.2	6.5
Plywood (thousand m^3)				
Production	110	1 000	4 200	38.2
Exports	18	262	2 383	132.3

Source: FAO, Yearbook of Forest Products

Table 13

Annual average exports of cotton and jute fibres and fabrics from developing countries in 1950-1952 and 1970-1972

($ million)

SITC		1950-1952 (1)	1970-1972 (2)	Ratio (2):(1)
263.1	Raw cotton	1 323	1 502	1.1
652	Cotton fabrics	252	586	2.3
264	Raw jute	238	171	0.7
653.4	Jute fabrics	360	467	1.3

Source: As for table 11.

Table 14

Production and mill consumption of cotton in developing countries, 1948, 1960 and 1972

(Thousand tons and percentages)

	1948		1960		1972		Ratio 1972/1948
	Quantity	% of world	Quantity	% of world	Quantity	% of world	
(a) Cotton fibre production	1 948	31	3 615	33	5 423	42	2.8
(b) Cotton mill consumption	1 362	22	2 258	22	3 738	29	2.7
(b) as per cent of (a)	70		62		69		

Sources: United Nations, Statistical Yearbook (various issues) and FAO, Per capita fibre consumption (series ESCR:FC)

68. A drastic shift in the pattern of the world cotton textile industry nevertheless occurred during the post-war period: from being net importers of cotton textiles the developing countries became net exporters, both in volume and in value terms. Moreover, the developing countries increased sharply their exports of made-up textiles, particularly clothing. Imports of clothing into developed market-economy countries from developing countries increased in value terms at an annual rate of 26 per cent from 1962 to 1973. This expansion was, however, to a

large extent based on imports of man-made fibres, yarns and fabrics from the developed market-economy countries. Table 15 indicates that developing countries are practically self-sufficient in artificial fibres (rayon), which are largely used in textiles for the domestic market, while the rapid import increase, which largely occurred after 1960, was in synthetic fibres; this is also true for imports of synthetic yarns and fabrics.

Table 15

Production and net trade in artificial and synthetic fibres in developing countries, 1948, 1960 and 1972

(Thousands of tons and percentages)

	1948		1960		1972	
	Quantity	% of world	Quantity	% of world	Quantity	% of world
Artificial fibres						
Production	25	2.2	196	7.5	486	13.1
Mill consumption	45 a/	4 a/	235 a/	9 a/	540	14.5
Excess of consumption over production	20 a/		40 a/		45 a/	
Synthetic fibres						
Production	-	-	8	1.1	405	6.2
Mill consumption	-	-	25 a/	3 a/	750	11.4
Excess of consumption over production	-	-	17 a/		345	

Sources: As for table 14.

a/ Estimated by the UNCTAD secretariat.

69. For the group ores and metals indications of changes in the degree of processing in exports from developing countries can be derived from the metal content of ores mined, smelter output and industrial consumption. The world's steel industry was originally located in countries with both iron ore and coal resources. Before the second World War only a small proportion of iron ore production entered foreign trade, and it was shipped generally over short distances. Developing countries accounted in 1937 for 25 per cent of world iron ore exports (Fe-content). The situation subsequently changed as a result of falling freight rates, and the developing countries now account for about one-half or more of world exports of iron ore. Only three developing countries, however - Mexico, Yugoslavia and Egypt - produce iron ore exclusively for domestic processing into pig iron and steel. Most other iron-ore producing developing countries export

all their ore output, and even major steel producers, such as India and Brazil, export most of their ore output. The major iron ore exporters in 1970-1972 were Brazil, Liberia, India, Venezuela, Mauritania, Peru and Chile, together accounting for about 90 per cent of the total for developing countries.

70. A comparison of iron ore production with pig iron and crude steel output in developing countries indicates that, despite the fast growth of the steel industry, most of the increased iron ore output was exported as such, or with only a minor degree of processing (e.g. some pelletization). Hence the share of processing in this industry in developing countries actually fell from 1948 to 1972, as regards production as well as exports.11/ Exports of processed iron ore in the form of pig iron and steel are so far relatively unimportant for developing countries.

Table 16

Production of iron ore, pig iron and crude steel and consumption of crude steel in developing countries, 1948, 1960 and 1972

(million tons)

	1948	1960	1972	1972/1960
Iron ore production (Fe-content)	7.5	49.0	118.9	15.9
Pig iron production	2.4	8.6	20.6	8.6
Crude steel production	2.6	9.1	26.1	10.0
Crude steel consumption	8.0 a/	20.0 a/	50.5	6.3

Source: United Nations, Statistical Yearbook

a/ Estimated by the UNCTAD secretariat.

71. In the non-ferrous metal industry the share of extracted ores processed in the developing countries themselves increased from 1948 to 1972 for aluminium, tin and zinc, but not for copper and lead. In 1948 the developing countries accounted for 58 per cent of world bauxite output but they had practically no production of either alumina or refined aluminium. By 1972 the situation had changed: several bauxite-producing countries had started alumina production and several developing countries had an aluminium smelting industry. The share of developing countries in world aluminium production increased from 0.4 per cent in 1948 to 6.4 per cent in 1972; in the latter year they accounted for 53 per cent of world bauxite output.

72. The share of developing countries in world mining production also fell from 1948 to 1972 for copper, lead, zinc and tin ores, and also did their share in world production of lead metal and world smelter output of copper. On the other hand,

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11/ This is also true of the petroleum sector. The capacity of the petroleum refining industry in developing countries in 1948 corresponded to 69 per cent of crude oil output, but in 1972 to only 39 per cent.

their share in world production of zinc and tin metal increased, while for refined copper there was no change. The reasons for the failure of the developing countries to increase their stake in the world non-ferrous metal industry are many and varied. One major reason has obviously been the faster economic growth in the socialist countries of Eastern Europe than in the rest of the world, an expansion which has been based almost entirely on domestically available raw materials. Other factors are: the emergence of Australia as a major exporter of non-ferrous ores and metals; technological improvements which have made economic the utilization of very lean ores in North America; and political and other disturbances in several developing countries' major producers of non-ferrous metals.

73. It has thus been seen that developing countries' exports are heavily concentrated on unprocessed commodities and that there has been no general increase in the degree of processing for export of their locally abundant raw materials during the post-war period, at any rate not in the sense of moving from the unprocessed to the semi-processed stage and so on, until the final stage of processing. The very fast increase in developing countries' exports of manufactures was, in fact, largely concentrated on certain labour-intensive products (such as clothing, certain electronics products and plywood) and it was to a significant extent based on inputs imported either from the developed countries (synthetic yarn and fabrics; electronic components; etc.) or, in some cases, from other developing countries (veneer logs for plywood making).

74. The question is to what extent the developing countries can increase their export earnings by "downstream" processing, that is, moving progressively through the various stages of processing to the final finished product. It should be noted that, apart from mineral fuels, developing countries are net importers in their trade with developed market-economy countries in the selected product groups (tables 2-8) as regards both semi-processed and processed products. Hence, the trade balance of the developing countries taken as a whole will improve both if the further processing is undertaken for export to developed countries and if it is intended largely to serve a local or regional market. Indeed, it is very likely that, given the expected fast growth in manufacturing output in developing countries, the future expansion of downstream processing will largely serve the growing needs for industrial inputs in the developing countries themselves.

75. Superficially, the scope for increased export earnings through downstream processing is largest in the product groups where developing countries' exports are concentrated on the unprocessed or only slightly processed stages. This situation obtains in the product groups food etc., rubber, wood, ores and metals and petroleum.

B. The scope for further processing in different industries

1. Food processing

76. Trade in food among the developed market-economy countries consists largely of the unprocessed varieties, notably cereals, fresh meat and fruit and vegetables. Further improvements in transportation of perishable foodstuffs will no doubt mean that international trade in foodstuffs will remain largely concentrated on these unprocessed varieties. There is, however, scope for downstream processing of food products in developing countries, particularly for their domestic markets and

Table 17

Estimates of net exports from developing countries of non-ferrous ores and metals, 1948, 1960 and 1972

(Thousands of tons)

		1948	1960	1972
Bauxite and alumina	A	712	2 713	5 402
Aluminium metal	B	-16	-47	85
	C	-17	-63	48
Copper ore and concentrates	A	102	203	452
Blister copper	D	346	777	636
Refined copper	B	465	659	1 161
Blister + refined	C	721	1 242	1 608
Lead ore and concentrates	A	134	293	256
Lead metal	B	273	306	190
	C	189	316	180
Zinc ore and concentrates	A	363	627	778
Zinc metal	B	22	32	-34
	C	-13	-14	-66
Tin ore and concentrates	A	88	45	30
Tin metal	B	45	72	127
	C	35	42	77

Source: Metallgesellschaft, Metal Statistics (Frankfurt-am-Main).

NOTE

A = difference between metal content of ore production and primary smelter output.

B = difference between production and consumption of primary metals.

C = based on available trade statistics of major exporters and importers.

D = difference between refinery output and smelter output.

as a substitute for imports of semi-processed and processed foodstuffs from the developed countries. The value-added gains are normally quite small in this industry, and in the branches where the value added content is large, such as chocolate and confectionery, the inputs are extremely varied. In Sweden, cocoa (beans, powder and butter) accounted in 1972 for a mere 17 per cent of total inputs in this branch. (See table 18) 12/.

77. One indication of the scope for reducing dependence on outside supplies of semi-processed and processed food and feed - through increased domestic processing and greater trade among the developing countries - is provided by the composition of the exports from developed market-economy countries of semi-processed and processed food and feed to the developing countries in 1973. The major items were: milk powder; alcoholic beverages; wheat flour; refined sugar; cereal preparations; soft vegetables oils; tobacco manufactures.

2. Hides, leather and leather products

78. In the sector "raw hides, leather and leather products" developing countries' exports are already concentrated on the more processed stages. The expansion of their exports of footwear and of leather clothing and furniture is a comparatively recent development, while exports of sports goods (boxing gloves, footballs, etc.), travel goods and other leather products are of long standing. It appears likely that developing countries will continue to expand exports of finished leather products to the developed countries.

79. Developing countries account for a significant proportion of world production of various raw hides and skins. (See table 19). Nevertheless the unavailability of high quality materials has to some extent hampered the growth of exports of leather and leather products. The value-added gain by moving from production of fresh hides to leather and then to footwear and other leather products is substantial, and relatively small amounts of other (imported) inputs are required.

3. Rubber and rubber products

80. A country producing natural rubber would not necessarily aim at establishing an industry for rubber tyres except for the local or regional market. According to Swedish data, natural rubber accounted in 1972 for about 4 per cent of the ex-factory value of rubber tyres, while synthetic rubber accounted for twice that proportion; carbon black, other chemicals, cord fabrics were the major inputs. (Rubber, natural and synthetic, accounts for about one half of the weight of a tyre).

81. A natural rubber producing country has, in fact, only a very slight advantage over other countries in producing tyres and other finished rubber products. Natural and synthetic rubber are now used in combination in most applications. There remain, however, fields reserved for natural rubber into which the raw-material producing countries could, and should, enter. Besides, any improvement in the standardization, quality and presentation of natural rubber will tend to increase its export price and also the net export returns, unless the further processing requires too many imported materials.

12/ Extensive use has been made in this section of the Swedish industrial census for two major reasons. One is the very detailed and complete reporting on output and cost structures. The other is that Sweden is an open economy where international price and cost structures are well reflected.

Table 18

The input structure of selected industrial branches in Sweden in 1972

(Percentages)

No.	Branch	Specific input	Specific input as % of All inputs	Specific input as % of Sales value	Value added as % of sales value
3114	Fish conserves	Fish fresh or simply preserved	51	28	42
3119	Chocolate and confectionery	Cocoa beans, powder, butter	17	8	52
31212	Coffee roasting	Green coffee	..	63	28
3211	Spinning, weaving, finishing	Fibres: natural	12	5	
		synthetic and artificial	8	3	
		Yarn: natural	13	6	
		synthetic and artificial	23	10	
		Fabrics	16	7	
		Total of listed inputs	73	32	52
3231	Tanneries	Hides, raw or simply prepared	62	38	37
32202	Leather clothing	Leather	82	33	58
3240	Shoe factories	Leather	43	19	53
		Rubber and plastics	10	4	
3311	Wood industry (sawmills, prefabs, mouldings, plywood, particle board)	Logs	55	28	
		Sawn and planed wood	14	7	
		Other wood products	5	3	
		Total of listed inputs	74	38	45
3551	Rubber tyres and inner tubes	Natural rubber	11	4	
		Synthetic rubber	21	8	
		Chemicals	18	7	
		Cord	21	8	
		Total of listed inputs	71	26	59
3710	Iron and steel industry	Iron ore, pellets, sinter	9	4	45
		Other ores	3	2	

Source: National Central Bureau of Statistics, Manufacturing 1972, part I: Data grouped according to Standard for Swedish Classification of Economic Activities (SOS), Stockholm, 1974.

Table 19

Average annual production of fresh hides and skins in developing countries, 1972-1974 a/

(000 tons)

Category	Production (000 tons)	Percentage of world production
Buffalo hides, fresh	413	80
Goatskins, fresh	211	75
Horse hides, fresh	54	68
Cattle hides, fresh	2 028	38
Sheepskins, fresh	294	31
Pigskins, fresh	9	2

Source: FAO Production Yearbook, 1974 (Rome, 1975)

a/ The share of developing countries in world exports (by value) of hides and skins (SITC 211) was 23 per cent in 1970-1972.

82. In the longer run, a further increase in synthetic rubber production in a number of developing countries can form the basis for a more diversified rubber processing industry. However, international trade in fully processed rubber products, apart from tyres, is very limited, even among developed countries. (See table 20).

4. Wood and wood products

83. Products of tropical hardwood are one of the most promising areas for further processing in developing countries. As shown above, the greater part, in volume terms, of the developing countries' exports of tropical hardwood is in the form of sawlogs and veneer logs. The export unit value of such logs was in 1972 about \$23 per m^3. The export unit value of plywood was \$133 per m^3, but it takes 2.3 m^3 roundwood to produce 1 m^3 plywood. The increase in export earnings by moving from logs to plywood is therefore a maximum of \$35 per m^3 roundwood equivalent. However, apart from capital costs, the production costs of plywood include other materials, in particular glues, and the product must be carefully packed to avoid damage during transportation.

84. Table 21 gives export unit values in terms of roundwood equivalent for a number of other wood products. If in 1972 the developing countries had exported tropical hardwood only in processed form (veneer sheets, plywood, particle board, etc.) and in an amount corresponding to their actual exports of wood products, in roundwood equivalent, in that year, their export earnings would have been some 50 - 100 per cent higher. Moreover, in this calculation no account is taken of the fact that unused portions of logs converted into sawnwood, plywood, etc., need not necessarily be wasted but can be exported (wood-chips for paper making) or used at home (as fuel or as raw material in the particle board and woodpulp industries). In the Swedish pulp industry, for example, wood waste (from sawmills) in 1972 was priced at about one-quarter to one-third of the price for pulpwood. In turn, pulpwood commands a lower price per cubic metre than sawlogs, mainly because pulpwood is of smaller dimensions than sawlogs. In developing countries a higher degree of utilization of forests would accrue from harvesting also pulpwood. One difficulty is, however, that pulpwood digesters require a homogenous feed, whereas the main characteristic of tropical forests is their extreme variety of species and of trees as regards their age and size.

5. Pulp, paper and paper products

85. The fast economic growth envisaged in developing countries and in their exports of manufactures will most likely lead to a still faster increase in their requirements of paper and paperboard. Unless there is a commensurate expansion of pulp and paper capacities in developing countries, their trade balance in such products, already highly negative (see table 6) will deteriorate further. In the short-run there exist good prospects for expanding output of pulp from bamboo, bagasse and other non-wood fibres. In the long run the replanting of tropical forests with fast-growing tropical fir offers prospects of turning the developing countries into net exporters of pulp and paper.

Table 20

Unit values of production, imports and exports of rubber products in Sweden, 1972

(Dollars per ton)

SITC		Production	Imports	Exports
231.1	Natural rubber	360[a/]	...	...
231.2	Synthetic rubber	394[a/]	374	(605)
231.3	Reclaimed rubber	201	184	208
621.01	Plates, sheets of unvulcanized rubber	389	439	(660)
621.02	Unvulcanized rubber in other forms	661	856	617
621.03	Vulcanized rubber thread and cord	(5 236)	2 170	(5 108)
621.04	Plates, sheets etc. of unhardened vulcanized rubber	953	1 778	1 061
621.05	Piping, tubing of unhardened vulcanized rubber	1 354	2 299	1 160
629.1	Rubber tyres and tubes	1 369	1 328	1 215
629.3	Hygienic and pharmaceutical articles of unhardened rubber	(5 197)	9 357	9 663
629.4	Transmission etc. belts of rubber	2 240	2 758	2 105
629.98	Other articles of rubber, unhardened	..	3 456	2 692

Source: As for table 18.

Note: Unit values in brackets are derived from very small figures of quantities and hence are subject to a wide margin of error.

a/ Input value in rubber-using industry.

Table 21

Export unit values of wood products of developing countries in 1972

(Dollars per m^3 or ton)

Product	Unit	Export unit value	Roundwood equivalent a/	Export unit value of roundwood equivalent
Broadleaved roundwood	m^3	23	1.0	23
" sawnwood	"	61	1.8	34
Veneer sheets	"	118	1.9	62
Plywood	"	133	2.3	58
Particle board	"	91	2.0	46
Fibre board	"	96	2.0	48
Mechanical woodpulp	Ton	119	2.5	48
Other fibre pulp	"	189	..	..
Newsprint	"	154	2.8	55
Printing and writing paper	"	269	3.5	77
Other paper and paper board	"	256	3.25	79

Source: FAO, Yearbook of Forest Products, 1973 (Rome, 1975).

a/ i.e. of one cubic metre or one ton of product.

6. Fibres, textiles and clothing

86. In the sector "textile fibres, yarns, fabrics and finished textiles" developing countries are net exporters of natural fibres (largely cotton), net importers of semi-processed products (imports consisting largely of synthetic fibres, yarns and fabrics) and net exporters of finished textiles (exports of clothing being to a large extent based on imported synthetics). Fabrics used in the clothing industry are now almost always a mixture of man-made and natural fibres and of different types of man-made fibres in various proportions. This means that developing countries, in order to increase the degree of processing for export of their natural fibres, must either import synthetic fibres or yarns or expand their production of synthetic fibres. Hence the situation is somewhat similar to that obtaining in the rubber industry.

87. Developing countries account for a large proportion of world production of several natural fibres (see table 22), most of which are meeting fierce competition from synthetics. For such fibres the trading position of the developing countries in 1973 may be seen from the following table which is based on statistics of the developed market-economy countries:

Trade of developed market-economy countries in natural hard fibres in 1972 ($ million)

	Imports from developing countries	Exports to developing countries	Trade with rest of world a/
Fibre and tow	278	6	108
Yarn	20	5	75
Fabrics	284	3	35
Cordage and matting	92	44	175
Total	674	58	393

Source: As for table 1. See also data in table 7.

a/ Average of import and export data. Includes trade among developed market-economy countries.

88. While the scope for further downstream processing is not great - jute is already exported from the developing countries largely in the form of fabrics - it appears from the text-table above that there is some processing of both jute and hard fibres in the developed countries which could be done in the developing countries - e.g., for the production of yarn and of cordage and matting. The market for hard fibre products is neither large nor dynamic, but there is nevertheless scope for further processing of hard fibres in developing countries.

Table 22

Annual average production of natural and man-made fibres in developing countries in 1972-1974

(Thousands of tons)

	Production (ooo tons)	Per cent of world production
Abaca (Manila hemp)	101	100
Agave fibres n.e.s.	162	100
Sisal	672	98
Jute	2 247	89
Fibre crops n.e.s.	798	88
Jute-like fibres	792	63
Cotton	5 283	39
Hemp fibre and tow	82	33
Wool: greasy weight	529	20
scoured weight	285	19
Silk, raw and waste	7.5	16
Flax fibre and tow	17.5	3
For reference:		
Artificial fibres (1972)	354	10
Synthetic fibres (1972)	405	6

Sources: FAO, Production Yearbook, 1974 (Rome, 1975); United Nations, Statistical Yearbook, 1973 (United Nations publication, Sales No. E/F.74.XVII.1).

7. Ores and metals

89. Developing countries as a whole now have large export surpluses in ores and unwrought metals, but import surpluses in worked metals (in particular rolled steel) and metal manufactures. This is without taking account of the "indirect" trade in basic metals, namely the metal content of machinery, transport equipment and other metal products. Already, developing countries export copper and tin largely as metal rather than as ores and concentrates. Only when mines are newly developed or too small to render a smelting operation profitable are such metals exported as ores. Aluminium and zinc are, on the other hand, exported respectively in the form of bauxite (and also alumina) and zinc concentrates. The location of aluminium smelters, which originally was largely determined by the availability of cheap hydro-power, tended during the period of relatively low petroleum prices to move towards the main consuming centres. Thus, plans to harness the water-power resources of Africa and South America and build aluminium smelters there were shelved. As a result of the drastic increase in petroleum prices that occurred in 1973 it can be expected that the availability of hydro-power will again become a major element in determining location. Moreover, several developing countries with domestic resources of natural gas will also be able to install aluminium smelters, as has already happened in Bahrain and Surinam.

90. It will inevitably be a long time before developing countries are able to convert all their exports of bauxite (and alumina) - at present some 5 million tons in Al-content - into exports of aluminium metal. This is in fact one of the most capital - and skill-intensive industries existing. Among the 402 industries distinguished in the United States census of manufacturing "primary aluminium" ranked seventh in 1970 with respect to capital invested per person employed 13/; it ranked eleventh with respect to wages per production worker and second (after synthetic fibre plants) with respect to capital invested per establishment.

91. The value added gains by moving to successive stages of aluminium processing are obviously substantial, as can be seen from the following typical data for developed market-economy countries in 1972.

SITC		Export or ex-factory price in dollars of one ton of Al
283.3	Bauxite	70
ex 513.6(5)	Alumina	120
684.1	Aluminium, unwrought	500
684.2	Aluminium wire, rod sheets, tubes	1 000
691.2	Finished structures of aluminium	2 000

Source: OECD, Foreign trade statistics bulletins, Series C - Trade by commodities.

13/ It thus followed petroleum refining; industrial gases; cement; pulp mills; alkalies and chlorine; and industrial organic chemicals.

92. Also, exports of lead and zinc from developing countries are mainly in the form of ores and concentrates, almost exclusively so in the case of zinc. The greatest obstacle to downstream processing has so far been that mine output in the individual countries is too small to support a smelter. Collaboration between two or more countries could, however, overcome this problem. There are some developing countries exporting copper concentrates (such as the Philippines, Papua New Guinea and Indonesia) which could possibly in the future develop a domestic smelting industry. In some other major copper-producing countries efforts are largely concentrated on further increasing the share of refined copper in smelter output, as in Zaire, Chile and Peru.

93. Moving from the production of refined copper to more processed forms of copper output increases the value added significantly although not dramatically, as illustrated by the following ex-factory prices in Sweden in 1972:

SITC		$ per ton
682.12	Refined copper	1 050
682.21	Bars, rods, angles	1 110
682.22	Plates, sheets	1 245
682.23	Foil	1 530
682.25	Tubes, pipes, etc.	1 700

Source: As for table 18 (part 2) The production of commodities and services grouped according to the Brussels nomenclature and according to the SITC - Revised.

94. Further downstream processing in developing countries of non-ferrous ores and metals is likely to be undertaken partly to increase export earnings and partly to reduce imports of both unwrought and worked metals. As a result developing countries should account in future for a larger share than at present of world non-ferrous smelting and processing. It cannot be expected, with some exceptions, that processing plants in the developed countries will be closed down merely to allow expansion in the developing countries. Hence, the outcome will mainly consist in the developing countries accounting for increasing shares of the annual additions to world capacity. In this connexion it is more likely that developing countries will be able to increase their share in products for which world demand is buoyant.

95. On the assumptions (a) that world aluminium production will grow at an annual rate of 6 per cent (compared with an actual growth of 12 per cent from 1948 to 1960 and 8 Per cent from 1960 to 1972); (b) that developing countries will not increase their share in world bauxite production; and (c) that one-half of the annual additions to world smelter capacity will be made in developing countries (which accounted for about 6 per cent of world aluminium production in 1972), then by the year 2000 the developing countries would account for 41 per cent of world production of aluminium metal while remaining net exporters of bauxite. On these same assumptions, aluminium production in developing countries, at over 30 million tons (35 times their output in 1972) would be almost three times as large as total world output in 1972. Such an outcome seems highly unlikely.

96. Equally unlikely is the possibility that by the year 2000 developing countries will have converted into steel all the iron ore they produce. In 1972 developing countries exported to the rest of the world iron ore with a Fe content of about 100 million tons. Their production of crude steel, at about 25 million tons, covered about one-half of their consumption. Future steel consumption growth can be expected to be significantly faster in developing than in developed countries and any foreseeable expansion of steel production in developing countries will in the first place serve to supply domestic markets.

97. It is not possible to estimate the potential foreign exchange gains to developing countries from downstream processing of primary products. The expected fast growth of manufacturing output in these countries will, by definition, lead to a rapid increase in their demand for industrial outputs, of both crude and processed materials. As has been emphasized above, developing countries are already net importers of inputs for many industries. Hence the further processing of their locally available raw materials must in the first place serve the needs of their industries, within the framework of collective self-reliance. It is not in the interest of developing countries to build up capital- and skill-intensive industries to supply the developed countries with semi-finished inputs. Rather, their interest lies in building up manufacturing capacity based on local and regional resources (wood, leather, textiles, etc.) and increasingly also of metal products and engineering goods.

98. The intermediate stages in the production process are almost always more capital- and skill-intensive than the final stages. Any development of such industries should consequently be considered carefully from the point of view of the best use of resources, as well as of the employment effects.

Chapter VI

SUMMARY AND CONCLUSIONS

99. In the preceding chapters downstream processing in developing countries of locally available crude materials was studied as an aspect of the industrialization process in general, and it was seen that the time horizon is of crucial importance for the selection of processing activities. In the long-run (for example by the target year 2000 set by the Lima Declaration and Plan of Action on Industrial Development and Co-operation) developing countries can be expected to create a large and diversified industrial sector within which the bulk of their crude material supplies are processed through the various stages up to and including the final stage. At that time developing countries can also be expected to trade extensively among themselves in products at every stage of processing. In their trade with developed countries, the present extreme imbalances can be expected to have turned into closer balance for major product groups, and also for individual manufacturing branches. In this context it is worth noting that several large and highly industrialized countries (such as the United States, the Soviet Union, Canada and Australia), as well as several smaller ones (for example, Sweden), export unprocessed foodstuffs and industrial materials to their great benefit. There is consequently no overriding economic reason for each developing country to process the totality of its crude material output before export. This conclusion in no way negates the need for the developing countries as a whole to expand substantially their processing of locally available raw materials and their export of such processed products.

100. In the present report, developing countries have been treated as a single group, as it is their net trading position, for major categories of commodities, with the rest of the world, and more particularly with the developed market-economy countries, which indicates their success in industrialization and economic growth. However, developing countries differ significantly one from another with respect to size, resource endowment and relative levels of development. As many of them are small and poorly endowed, it is evident that they will have to co-operate closely among themselves in order to reach their development goals: joint production, market sharing and other forms of industrial co-operation will be the appropriate instruments for intensifying the production and export of processed goods by these countries.

101. The tariff and non-tariff barriers applied by developed countries generally have an adverse effect on the processing and exports of semi-processed and processed commodities from the developing countries. Removal or relaxation of these trade obstacles calls for early and determined action at both the national and the international levels. The need for such a policy has been emphasized in resolutions and decisions adopted by various United Nations bodies. 14/ Special and continuous consideration has been given in UNCTAD to this problem since its inception. Studies by the UNCTAD secretariat have identified the products of the

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14/ In particular: General Assembly resolutions 2626 (XXV), on the International Development Strategy for the Second United Nations Development Decade, 3202 (S-VI), on the Programme of Action on the Establishment of a New International Economic Order, and 3362 (S-VII), on development and international co-operation; the Lima Plan of Action; and Conference resolutions 76 (III) and 77 (III).

developing countries affected by trade barriers and made specific proposals for the liberalization of such barriers. 15/ These proposals have been summarized in particular in a report by the UNCTAD secretariat to the eighth session of the Committee on Commodities on measures to expand processing of primary commodities in developing countries (TD/B/C.1/197). The question of liberalizing tariff and non-tariff barriers on semi-processed and processed commodities exported by developing countries is also receiving special attention in the current multilateral trade negotiations in GATT.

102. The need for greater control of restrictive business practices at both the national and the international level, in order inter alia to improve conditions for expanding the processing and export of commodities in the developing countries was unanimously recognized by the Conference at its third session, when it recommended that "Every effort should be made with a view to alleviating and, where possible eliminating, restrictive business practices adversely affecting the trade and development of developing countries." 16/

103. The General Assembly, at its sixth special session, reaffirmed in the Programme of Action on the Establishment of a New International Economic Order the need for appropriate international action in the field of restrictive business practices. The Programme calls for all efforts to be made to improve access to markets in developed countries through the progressive removal of restrictive business practices and, with regard to the activities of transnational corporations, the formulation, adoption and implementation of an international code of conduct to eliminate restrictive business practices. 17/ In addition, the General Assembly, at its seventh special session, decided that "Restrictive business practices adversely affecting international trade, particularly that of developing countries, should be eliminated and efforts should be made at the national and international levels with the objective of negotiating a set of equitable principles and rules."18/

104. As a result of UNCTAD's work in the field of restrictive business practices, in particular since the third session of the Conference, a basis now exists for work to commence on the formulation of the set of equitable principles and rules which have been called for. In this connexion, the Second Ad hoc Group of Experts on Restrictive Business Practices, which concluded its work in February 1976, discussed some of the aspects which such principles might reflect and considered two proposals submitted by the developing and developed market-economy countries respectively. The Group also agreed on a list of practices which might affect the trade and development of developing countries and drew up the elements for a formulation of a model law or laws for developing countries. 19/ Furthermore, it

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15/ For studies on non-tariff barriers see TD/120 and Supp.1, (the latter being reproduced in Proceedings of the United Nations Conference on Trade and Development, Third Session, Vol. II, Merchandise trade, United Nations publication, Sales No. E.73.II.D.5); TD/B/C.2/83 and Add.1; TD/B/C.2/R.2; TD/B/C.2/R.5/Supp.1 and Add.1.

16/ Conference resolution 77 (III), para. 1(a).

17/ General Assembly resolution 3202 (S-VI), sect. I, para. 3(a) (ii), and sect. V, para. (b).

18/ General Assembly resolution 3362 (S-VII), sect. I, Para. 10.

19/ For the report of the Group of Experts, see TD/B/600.

examined the ways and means of improving the collection and exchange of information on restrictive business practices, as well as the means of instituting consultation procedures.

105. In any development strategy, an important consideration is to undertake higher stages of processing which would as far as possible be consistent with existing capital/output and capital/labour ratios. From this point of view, the optimal processing of locally available crude materials should take the form of maximizing output in countries richly endowed with natural resources but of maximizing employment in countries poorly endowed and having an abundant supply of labour.

106. As regards the selection of sectors for downstream processing in the short term, there are some which offer scope for expanding the volume of processing, namely when a large proportion of a particular resource is currently exported, mainly in unprocessed form. There are other sectors where vertical expansion offers better scope, namely the addition of later stages of processing. In all cases the requirement of complementary inputs can sometimes act as a constraint. To the extent that such complementary inputs must be imported from the developed countries the value-added content of the developing countries' exports of processed commodities is diminished. 20/ This consideration is linked to the longer-term development strategy of the developing countries, briefly evoked above, which includes a balanced output expansion of intermediate input goods and of finished manufactures.

107. A major reason why developing countries may be expected to improve their competitiveness against developed countries is their elastic labour supply, whereas in the developed countries wage pressure is likely to continue being strong. Long-term contracts or arrangements among developing countries for the mutual supply of materials and intermediate inputs would contribute to maintaining their competitiveness on world markets for manufactures. Heed must, however, be taken of the experience of some developing countries that achieved a relatively fast growth of exports of manufactures in 1974 and 1975, when they were caught up in the scissor movement of increasing import prices of industrial inputs and falling demand in their major export markets. In the future, developing countries, like other countries, must secure access to intermediate inputs at stable prices, since the era of low-cost factor inputs is probably over.

108. In sum, it appears clear that developing countries already in the short-run can substantially improve their trade balance with the rest of the world by further processing of several of their abundant natural resources. This is true of a variety of food products (as much through increased exports as through reduced imports of processed food), of hides and leather, of tropical wood, of textile fibres and natural rubber, of iron ore (through pelletizing) and of non-ferrous ores (through smelting and refining).

20/ An important research project would be precisely the estimation of the value-added content of developing countries' exports of finished and semi-finished manufactures and of the import content of the inputs for these exports.

109. However, particularly in the case of textile fibres and natural rubber, any substantial increase in the production and exports of fully processed goods requires the building up of capacity for synthetic fibres and rubber respectively, in order to maximize the value-added gains, as these synthetic products are used largely in combination with the corresponding natural products.

110. Further processing of basic metals for use as inputs in the metal-using industries does not generally appear to be an economic proposition for developing countries. However, such processing is both economic and necessary when the objective is to feed the growing domestic regional markets, particularly in view of the fact that developing countries are net importers of such inputs.

111. It should also be remembered that developing countries already supply very large proportions of the developed countries' total import requirements of many finished manufactures and that economic growth in these countries is likely to be slower than in developing countries in the future. The most dynamic market in the coming decades will be the developing countries themselves. Particularly for many mass-consumption goods, the income elasticity of demand is much higher at low income levels than at high ones.

ANNEX

Classification of trade data by degree of processing

Branch	Degree of processing and SITC code[a]
Food, beverages, tobacco	Unprocessed: 001, 011, 022.3, 025, 031, 041-045, 051, 054, 061.1, 061.6, 071.1, 072.1, 074, 075, 081.1, 081.2, 081.9, 121, 221
	Semi-processed: 012, 022.1, 023, 024, 032, 046, 047, 052, 053, 055, 061.2, 061.5, 061.9, 072.2, 072.3, 081.3, 081.4, 111, 112, 411, 421, 422
	Processed: 013, 022.2, 048, 062, 071.3, 073, 091, 099, 122, 431
Hides, leather and products	Unprocessed: 211, 212, 291.9(5)
	Semi-processed: 611, 612, 613
	Processed: 831, 841.3, 842, 851.0(2)-851.0(4)
Rubber and products	Unprocessed: 231[b]
	Semi-processed: materials of rubber: 621
	Processed: 639, 655.4(5), 841.6 851.0(1)
Wood and products	Unprocessed: 241, 242
	Semi-processed: Sawn and planed wood: 243 Panel products, etc.: 631
	Processed: 632, 821.0(1) 821.0(3), 821.0(9)
Pulp, paper and products	Semi-processed: Pulp: 25 Paper: 641
	Processed: Paper articles: 642 Printed matter: 892
Textiles and clothing	Unprocessed: 26[c]
	Semi-processed: Yarns: 651 Fabrics: 652, 653
	Processed: 654-657 (less 655.4(5)), 841 (less 841.3, 841.6)

a/ Standard International Trade Classification, revised.

b/ 231.2 listed under semi-processed in table 1.

c/ 266 listed under semi-processed in table 1.

Branch	Degree of processing and SITC code
Ores and metals	Unprocessed: 281, 283
	Semi-processed: 513.6(5), 671, 672, 679, 682.1, 683.1, 684.1, 685.1, 686.1, 687.1, 688, 689
	Processed: 673-678, 682.2, 683.2, 684.2, 685.2, 686.2, 687.2, 69
Crude vegetable and animal materials	Unprocessed: 291, 292
Non-metallic minerals	Unprocessed: 273-276
	Semi-processed: 661-664
	Processed: 665, 666
Fertilizers	Unprocessed: 271
	Semi-processed: 561
Plastics	Semi-processed: 581
	Processed: 893
Petroleum	Unprocessed: 331.0(1)
	Semi-processed: 331.0(2), 332